Unit 2 Day 1 Name _____ Per _____

Determine whether the equation represents a function.

1. $x^2+y^2=4$ 2. $y=\sqrt{x^2-1}$ 3. $2x+3y=4$ 4. $y^2=x^2-1$

5. $y=|4-x|$ 6. $x=-8$ 7. $x=-y+5$ 8. $x+y^2=3$

Evaluate the function for the given values.

9. $f(t)=3t+1$
a) f(2)
b) f(x+2)
c) F(t) = 0

10. $H(t)=t^2-2t$
a) H(-1)
b) H(x-1)
c) H(t) = 0

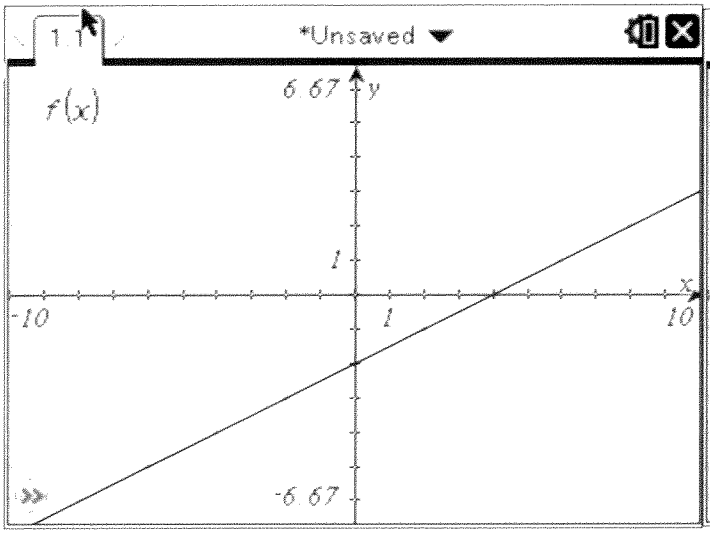
11. $V(r)=\frac{4}{3}\pi r^3$
a) V(3)
b) V(x)
c) $V(r)=64\pi$

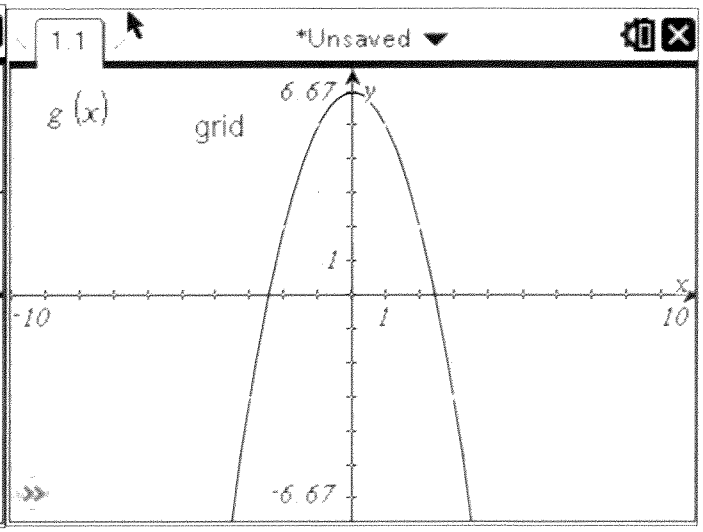
12. $f(x)=\begin{cases}2x+1, & x<0\\ 2x+2, & x\geq 0\end{cases}$
a) f(-2)
b) f(0)
c) f(2)

13. $f(x)=\begin{cases}x^2-4, & x\leq 1\\ 1-2x^2, & x>1\end{cases}$
a) f(-2)
b) f(1)
c) f(3)

14. $f(x)=\begin{cases}x+2, & x<1\\ 4, & 1\leq x<3\\ x^2+1, & x\geq 3\end{cases}$
a) f(-2)
b) f(1)
c) f(4)

Use the following graphs to answer the questions.





15. f(2)

16. g(-1)

17. f(-6)

18. g(0)

19. f(x)= 0

20. g(x) = -3

21. f(x) = 2

22. g(x) = 2

Unit 2 Day 1 - Key

1. No Circle
2. Yes
3. Yes
4. No
5. Yes
6. No Vertical line
7. Yes
8. No

9. a. $3(2)+1$

$\boxed{7}$

b. $3(x+2)+1$

$3x+6+1$

$\boxed{3x+7}$

c. $0 = 3t+1$

$\frac{-1}{3} = \frac{3t}{3}$

$\boxed{t = -1/3}$

10. a. $(-1)^2 - 2(-1)$

$1+2$

$\boxed{3}$

b. $(x-1)^2 - 2(x-1)$

$x^2 - 2x + 1 - 2x + 2$

$\boxed{x^2 - 4x + 3}$

c. $0 = t^2 - 2t$

$t(t-2)$

$\boxed{t = 0, 2}$

11. a. $\frac{4}{3}\pi(3)^3$

$\boxed{36\pi}$

b. $\boxed{\frac{4}{3}\pi x^3}$

c. $64\pi = \frac{4}{3}\pi r^3$

$48 = r^3$

$\sqrt[3]{8}\sqrt[3]{6} = r$

$\boxed{2\sqrt[3]{6} = r}$

12. a. $2(-2)+1$ b. $2(0)+2$ c. $2(2)+2$

$\boxed{-3}$ $\boxed{2}$ $\boxed{6}$

13. a. $(-2)^2-4$ b. $(1)^2-4$ c. $1-2(3)^2$

$\boxed{0}$ $\boxed{-3}$ $\boxed{-17}$

14. a. $-2+2$ b. $\boxed{4}$ c. 4^2+1

$\boxed{0}$ $\boxed{17}$

15. -1

16. 5

17. -5

18. 6

19. $y=0$ @ $x=4$

20. $x=-3, 3$

21. 8

22. $x=\pm 2$

Unit 2 Day 2 WS Name _____ per ____

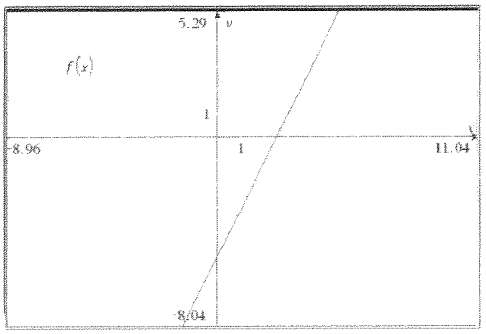
Use the following functions to answer questions 1-8.

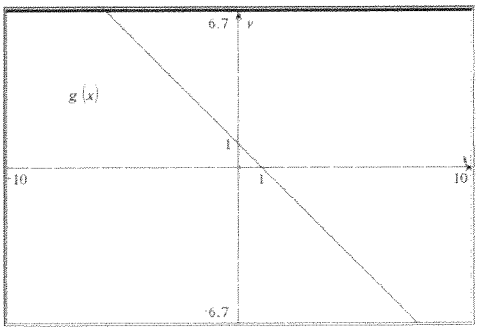
f(x) = x + 3 g(x) = $x^2 - 1$ h(x) = $\frac{1}{x-2}$ j(x)= $\sqrt{x+1} - 2$

1. (f+g)(3) 2. f(0)/h(0) 3. g(-2)-j(-2) 4. $(f \cdot j)(3)$

5. (g-h)(2) 6. f(8) + j(8) 7. (fg)(x+1) 8. $(f+g)(t^2)$

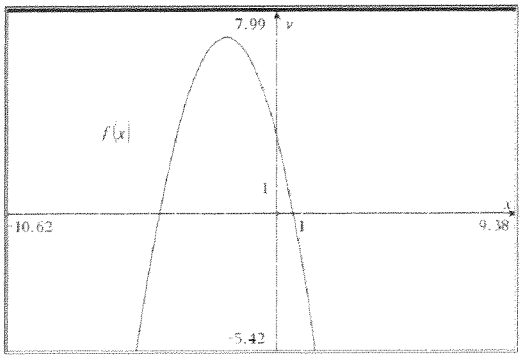
Using the following graphs to answer questions 9-12.

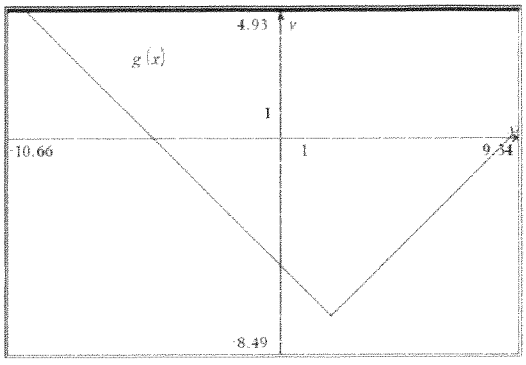




9. (f+g)(-2) 10. (f/g)(0) 11. f(2) – g(2) 12. f(4)g(4)

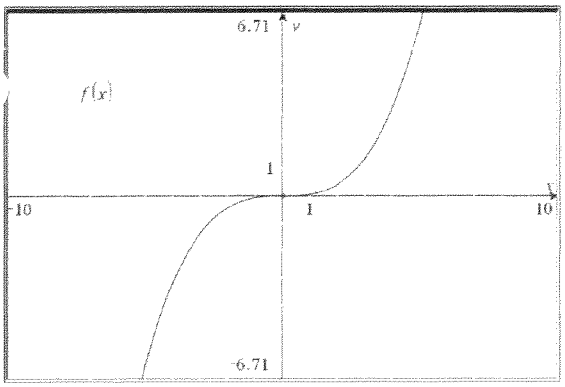
Use the following graphs to answer questions 13-16.

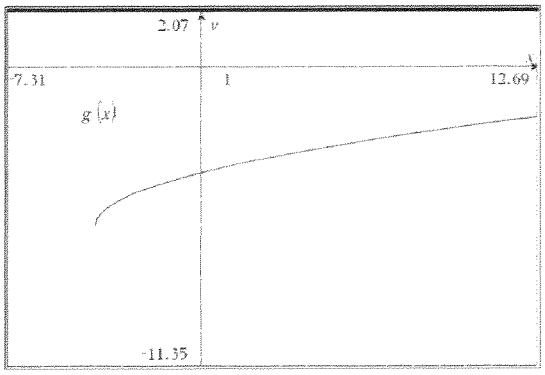




13. (f+g)(-2) 14. (f/g)(-3) 15. f(1) – g(1) 16. f(-5)g(-5)

Use the following graphs to answer questions 17-20.





17. (f+g)(-4)

18. (f/g)(0)

19. f(5) – g(5)

20. f(-4)g(-4)

*21. Evaluate the function for the given values.

$J(t) = 2t^2-4$

a) J(-2)

b) J(x+1)

c) J(t) = 0

d) J(t) = 4

Unit 2 Day 2 Key

1. $(f+g)3$

$(3+3)+(3^2-1)$

$6+8=\boxed{14}$

2. $\frac{0+3}{\frac{1}{-2}} = \frac{3}{\frac{-1}{2}} = \boxed{-6}$

3. $(-2)^2-1-\sqrt{-2+1}-2$

$3-i+2$

$\boxed{5-i}$

4. $f(3)\cdot j(3)$

$6\cdot\sqrt{4}-2$

$\boxed{0}$

5. $4-1-\frac{1}{2-2}$

But undefined

6. $11+\sqrt{12}-2$

$\boxed{9+2\sqrt{3}}$

$11+3-2$

$\boxed{12}$

7. $(fg)(x+1)$

$(x+4)((x+1)^2-1)$

$(x+4)(x^2+2x+1)$

$\boxed{x^3+2x^2+8x}$

8. $(f+g)(t^2)$

$t^2+3+(t^2)^2-1$

$\boxed{t^4+t^2+2}$

9. $-9+3=\boxed{-6}$

10. $-5/1=\boxed{-5}$

11. $-1-(-1)=\boxed{0}$

12. $3\cdot-3=\boxed{-9}$

13. $7+(-3)=\boxed{4}$

14. $6/-2=\boxed{-3}$

15. $-2-(-6)=\boxed{4}$

16. $(-2)(0)=\boxed{0}$

17. $(-3)+(-6) = \boxed{-9}$

18. $0/4 = \boxed{0}$

19. $6+3 = \boxed{9}$

20. $(-3)(-6) = \boxed{18}$

21. a. $2(-2)^2-4$

$2(4)-4$

$8-4 = \boxed{4}$

b. $2(x+1)^2-4$

$2(x^2+2x+1)-4$

$\boxed{2x^2+4x-2}$

c. $0 = 2t^2-4$

$\frac{4}{2} = \frac{2t^2}{2}$

$2 = t^2$

$\boxed{t = \pm\sqrt{2}}$

d. $4 = 2t^2-4$

$\frac{8}{2} = t^2$ $\quad 4 = t^2$ $\quad \boxed{t = \pm 2}$

Rally Coach U2D3 Name _____ Per _____

Find the domain of each function.

Function	Person A	Person B
$f(x)= 3x + 2$		
$f(x) = \sqrt{x + 1}$		
$f(x) = \frac{2}{x-1}$		
$f(x) = \frac{3}{x+2}$		
$f(x) = \sqrt{2 - x}$		
$f(x) = 3x^2 + 4$		
$f(x) = \frac{1}{x^2-5x+6}$		
$f(x) = \frac{5}{\sqrt{x-1}}$		
$f(x) = \frac{1}{x^2+1}$		
$f(x) = \sqrt[3]{2x + 3}$		

Graph the following functions on your graphing calculator and determine the domain and range of the graph.

Function	Person A	Person B
f(x) = $\|3x + 1\|$		
f(x) = -2x + 5		
f(x) = $\frac{1}{\sqrt{x+3}}$		
f(x) = x^2+4		
f(x) = $\sqrt{16 - x^2}$		
f(x) = $\frac{1}{x^2-9}$		
f(x) = $sinx$		
f(x) = cosx		

Unit 2 Day 3 WS Name _____ Per _____

For problems 1–9, find A) $(f \circ g)(x)$, B) state the domain of the composite function, and C) $(f \circ g)(2)$

1. $f(x) = \sqrt{x+4},\ g(x) = x^2$

2. $f(x) = x^2 + 1,\ g(x) = \sqrt{x-1}$

3. $f(x) = 5x + 4,\ g(x) = 4 - x$

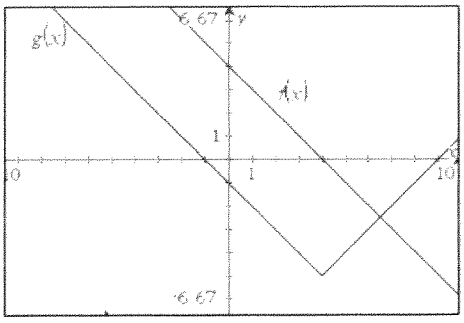
4. $f(x) = \frac{1}{4}(x-1),\ g(x) = 4x + 1$

5. $f(x) = x^2 - 1,\ g(x) = x - 2$

6. $f(x) = 3x + 2,\ g(x) = -\sqrt{x+5}$

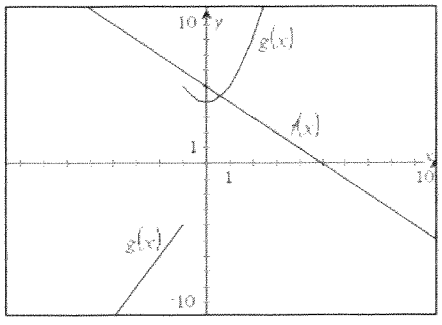
7. $f(x) = \frac{3}{x^2-1},\ g(x) = x + 1$

Use for 8–10.



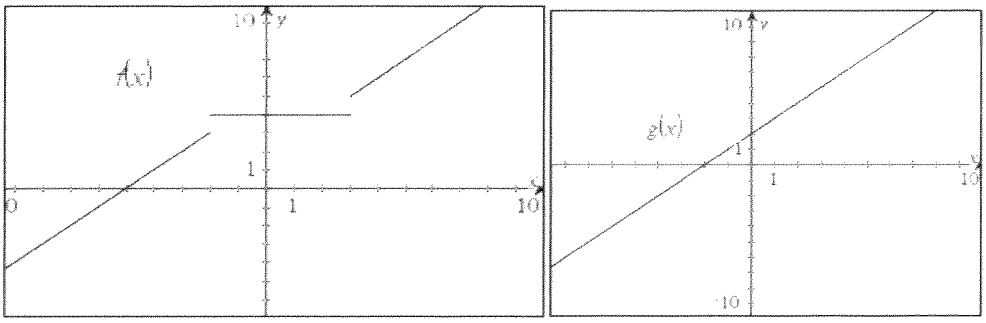
8. f(g(1)) 9. f(g(−1)) 10. g(f(5))

Use for 11–13.



11. g(f(4)) 12. f(g(2)) 13. g(f(6)

Use for 14–16.



14. f(g(1)) 15. g(f(4)) 16. g(f(–4))

Evaluate the function for the given values.

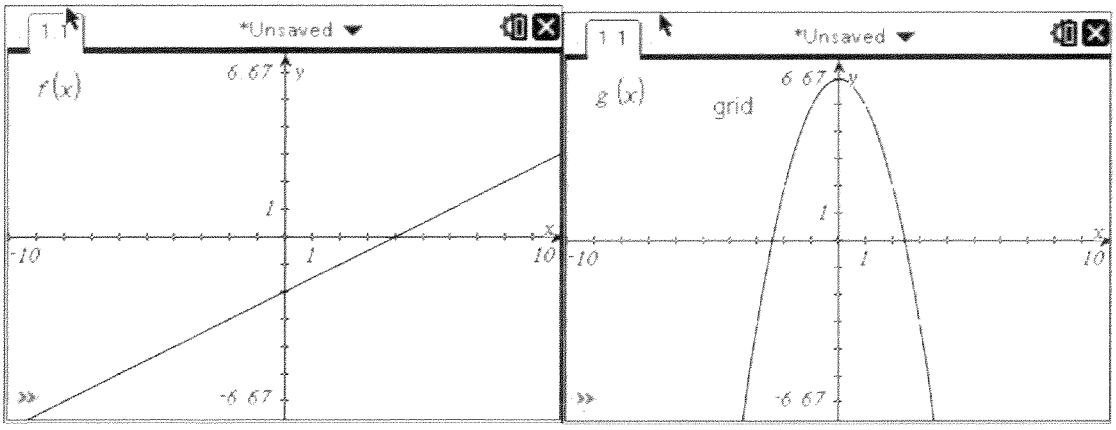
*17. v(t) = –4x – 4

a) f(–3)

b) f(x+3)

c) F(t) = 0

Use the following graphs to answer the questions.



*18. (f+g)(0) *19. g(–3) *20. f(2)•g(2) *21. (g–f)(1)

Unit 2 Day 3 Key

1. a. $f(g(x)) = \sqrt{x^2+4}$

   b. domain: ~~$x \geq 4$~~ all $\mathbb{R}$

   c. $\sqrt{8} = 2\sqrt{2}$

2. a. $(\sqrt{x-1})^2+1 = x$

   b. domain: $x \geq 1$ or $[1, \infty)$

   c. 2

3. a. $5(4-x)+4 \Rightarrow -5x+24$

   b. domain: all real

   c. 14

4. a. $\frac{1}{4}(4x+$ ~~1~~ $) = x$

   b. domain: all real

   c. 2

5. a. $(x-2)^2-1 \Rightarrow x^2-4x+3$

   b. domain: all real

   c. -1

6. a. $-3\sqrt{x+5}+2$

   b. domain: $x \geq -5$

   c. $-3\sqrt{7}+2$

7. a. $\frac{3}{(x+1)^2-1} \Rightarrow \frac{3}{x^2+2x}$

b. domain: all Reals except $x = \pm 1$

c. 3/8

8. $g(1) = -2$ $f(-2) = \boxed{6}$

9. $g(-1) = 0$ $f(0) = \boxed{4}$

10. $f(5) = -1$ $g(-1) = \boxed{0}$

11. $f(4) = 1$ $g(1) = \boxed{5}$

12. $g(2) = 8$ $f(8) = \boxed{-3}$

13. $f(6) = -1$ $g(-1) =$ undefined.

14. $g(1) = 3$ $f(3) =$ undefined (4 or 5)

15. $f(4) = 6$ $g(6) = 8$

16. $f(-4) = 1$ $g(1) = 3$

17. a. $-4(-3) - 4 = 12 - 4 = \boxed{8}$

b. $-4(x+3) - 4 = -4x - 12 - 4 = \boxed{-4x - 16}$

c. $0 = -4x - 4$ $x = -1$

$4 = -4x$

18. $f(0) = -2$ $g(0) = 6$ $\boxed{4}$

19. $g(-3) = \boxed{-3}$

20. $f(2) = -1$ $g(2) = 2$ $\boxed{-2}$

21. $g(1) = 5$ $f(1) = -1.5$ $\boxed{3.5}$

Unit 2 Day 5 WS

Name _____ Per _____

State the domain for each function.

1. $f(x) = 2x^3+1$

2. $f(x) = \frac{1}{\sqrt{2x}}$

3. $f(x) = |3x + 1|$

4. $f(x) = 2\sqrt[3]{3x + 1}$

5. $f(x) = 4$

Use a graphing utility to graph the following functions. Then state the domain and range for each graph.

6. $f(x) = \sqrt{4 - x^2}$

7. $f(x) = \frac{3x}{x+5}$

8. $f(x) = 1-2x^2$

9. $f(x) = \frac{|x-2|}{x-2}$

10. $f(x) = \frac{2x^2+3}{2x^2}$

11. $f(x) = \sqrt{x + 8} + 2$

12. $f(x) = \frac{1}{x^2-9}$

13. $f(x) = \ln(x-3)$

Evaluate the following functions.

*14. f(x) = $\begin{cases} x^2 - 4, & x \leq 3 \\ 1 - 2x^2, & x > 3 \end{cases}$

a) f(−1)

b) f(3)

c) f(5)

*15. $f(x) = x^2 + 4x - 10,\ g(x) = \frac{2}{3}x + 4$

a) f(g(−6))

b) g(f(2))

c) (f+g)(x)

d) (fg)(x)

Unit 2 Day 4 Key

1. domain: $\mathbb{R}$

2. $x > 0$

3. domain: $\mathbb{R}$

4. domain: $\mathbb{R}$

5. domain: 4

6. d: $-2 \le x \le 2$ $[-2, 2]$
   r: $0 \le y \le 2$ $[0, 2]$

7. d: $\mathbb{R}$ except $x = -5$
   r: $\mathbb{R}$ except $y = 3$

8. d: $\mathbb{R}$
   r: $y \le 1$

9. d: $\mathbb{R}$ except $x = 2$
   r: $y = \pm 1$

10. d: $\mathbb{R}$ except 0
    r: $y > 1$

11. d: $x \ge -8$
    r: $y \ge 2$

12. d: $\mathbb{R}$ except ± 3
    r: $\mathbb{R}$ except 0

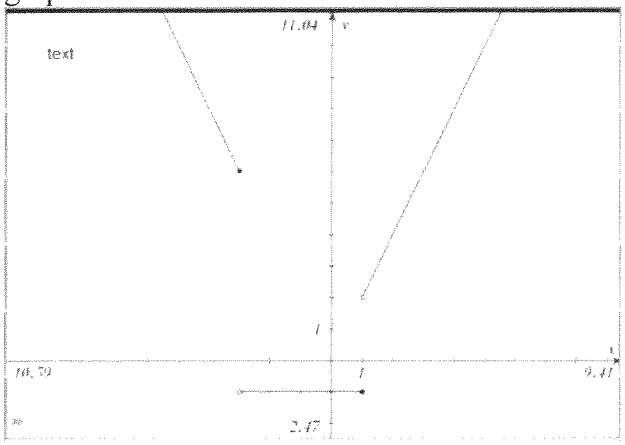
13. d: $x \ge 3$
    r: $y \ge -2$

14. a. $(-1)^2 - 4$ $\boxed{-3}$
    b. $3^2 - 4$ $\boxed{5}$
    c. $1 - 2(5)^2$ $\boxed{-49}$

15. a. $g(-6) = 0$
    $f(0) = \boxed{-10}$
    b. $f(2) = 2$
    $g(2) = \boxed{\frac{16}{3}}$
    c. $x^2 + \frac{14}{3}x - 6$
    d. $\frac{2}{3}x^3 + \frac{20}{3}x^2 + \frac{28}{3}x - 40$

Unit 2 Day 5 WS | Name _____ Per _____

Take a look at the following graphs and determine the intervals where the graph is a) increasing, b) decreasing, c) constant. Then state any maximums or minimums for the graphs. Finally give the domain and range for the graphs.

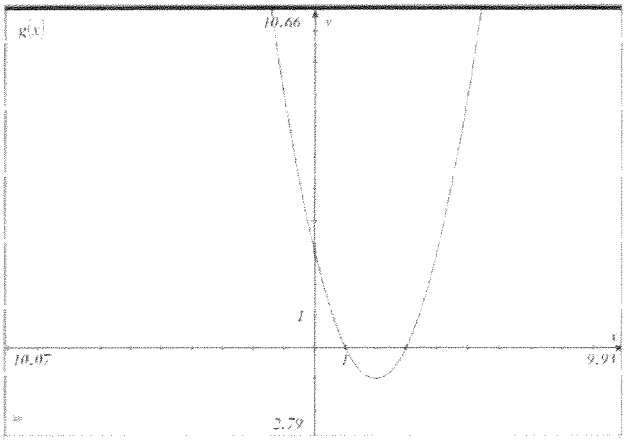


1. a) Max

b) Min

c) Domain

Range

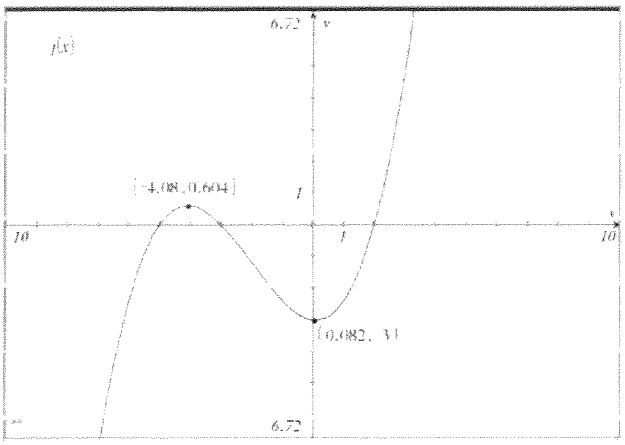


2. a) Max

b) Min

c) Domain

Range

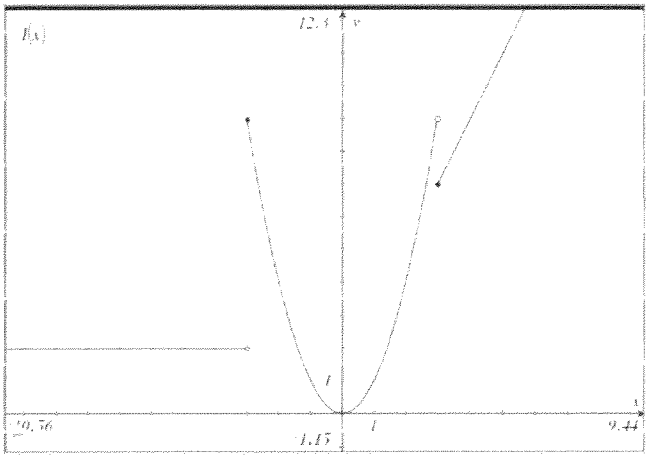


3. a) Max

b) Min

c) Domain

Range



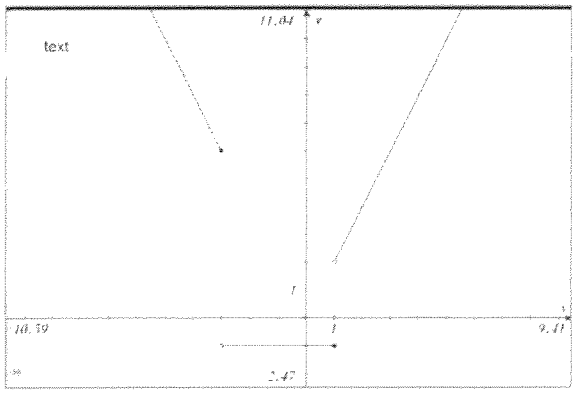
4. a) Max

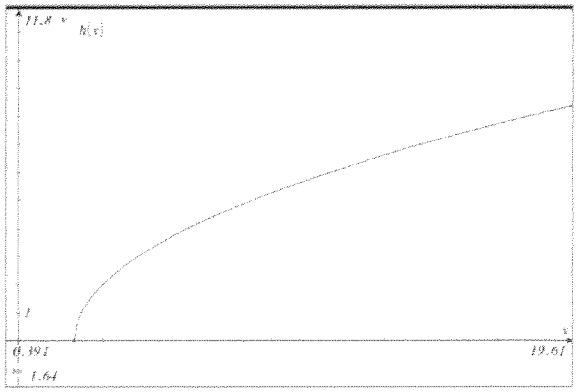
b) Min

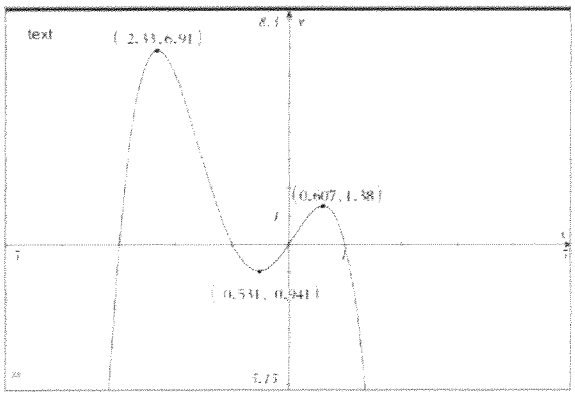
c) Domain

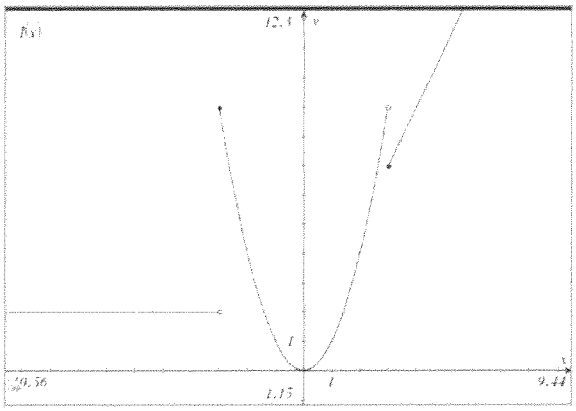
Range

Answer the following questions using the given graphs.









5. (f + l)(-1)

6

6. (h/l)(3)

2/9

7. (f - k)(-2)

-7

8. (fl)(-5)

20

9. f(h(6))

7

10. f(k(0))

-1

11. f(h(3))

4

12. h(3)+l(3)

9

13. k(-2) - l(-2)

-4

14. f(-5)l(-5)

20

15. f(f(2))

8

16. l(l(-4))

4

Unit 5 day 1 key

1. a. $(1, \infty)$
   b. $(-\infty, -3]$
   c. $(-3, 1]$

   Max: DNE
   Min: ~~$y = -1$~~ DNE
   D: $\mathbb{R}$
   R: $\mathbb{R}$ except $-1 < y < 2$

2. a. $(2, \infty)$
   b. $(-\infty, 2)$
   c. ~~DNE~~ $x = 2$

   Max: DNE
   Min: @ $x = 2$ & $y = -1$
   D: $\mathbb{R}$
   R: $y \geq -1$

3. a. $(-\infty, -4.08)$ $(.082, \infty)$
   b. $(-4.08, .082)$
   c. DNE

   Max: DNE
   Min: DNE
   D: $\mathbb{R}$
   R: $\mathbb{R}$

4. a. $(0, \infty)$
   b. $[-3, 0)$
   c. $(-\infty, -3)$

   Max: DNE
   Min: $x = 0$, $y = 0$
   D: ~~R~~ $\mathbb{R}$
   R: $y \geq 0$

5. $f(-1) = -1$ $\quad$ $k(-1) = 1$ $\quad$ $= \boxed{0}$

6. $h(3) = 2$ $\quad$ $k(3) = 7$ $\quad$ $= \boxed{27}$

7. $f(-2) = -1$ $\quad$ $k(-2) = -6$ $\quad$ $= \boxed{-7}$

9. $h(6) = 4$ $\quad$ $f(4) = 9$ $\quad$ $\boxed{9}$

10. $k(0) = 0$ $\quad$ $f(0) = \boxed{-1}$

11. $h(3) = 2$ $\quad$ $f(2) = \boxed{4}$

12. $h(3) = 2$ $\quad$ $k(3) = 7$ $\quad$ $\boxed{9}$

8. $f(-5) = +10$ $\quad$ $k(-5) = 2$ $\quad$ $= \boxed{+20}$

13. $k(-2) = 0$ $\quad$ $k(-2) = 4$ $\quad$ $\boxed{-4}$

14. $f(-5) = 10$ $\quad$ $k(-5) = 2$ $\quad$ $\boxed{20}$

15. $f(2) = 4$ $\quad$ $f(4) = 9$ $\quad$ $\boxed{9}$

16. $k(-4) = 2$ $\quad$ $k(2) = 4$ $\quad$ $\boxed{4}$

Unit 2 Day 5 WS 2 Name Key Per ____

Using your graphing utility and graph the following functions. Sketch a complete graph and label the graph to indicate the window settings. Identify the information listed.

1. **$f(x) = x^5 + 3x^3 + 2x^2 - 12x + 8$**

Relative max(s): -1.055 Domain: $\mathbb{R}$

Relative min(s): $.83351$ Range: $\mathbb{R}$

Absolute max: DNE Increasing: $(-\infty, -1.055) \cup (.83351, \infty)$

Absolute min: DNE Decreasing: $(-1.055, .83351)$

$x \to \infty, f(x) \to \infty$ $x \to -\infty, f(x) \to -\infty$

zeros: -1.795 y-int: 8

2. **$f(x) = x^4 + 6x^3 + 10x^2 + 6x + 9$**

Relative max(s): $(-1.06$ Domain: $\mathbb{R}$

Relative min(s): $.834$ Range: $\mathbb{R}$

Absolute max: DNE Increasing: $(-\infty, -1.06) \cup (.834, \infty)$

Absolute min: DNE Decreasing: $(-1.06, .834)$

$x \to \infty, f(x) \to +\infty$ $x \to -\infty, f(x) \to -\infty$

zeros: $x = -1.79$ y-int: $y = 9$

3. **$f(x) = 25x^3 - 55x^2 - 54x - 18$**

Relative max(s): $-.388$ Domain: $\mathbb{R}$

Relative min(s): 1.85 Range: $\mathbb{R}$

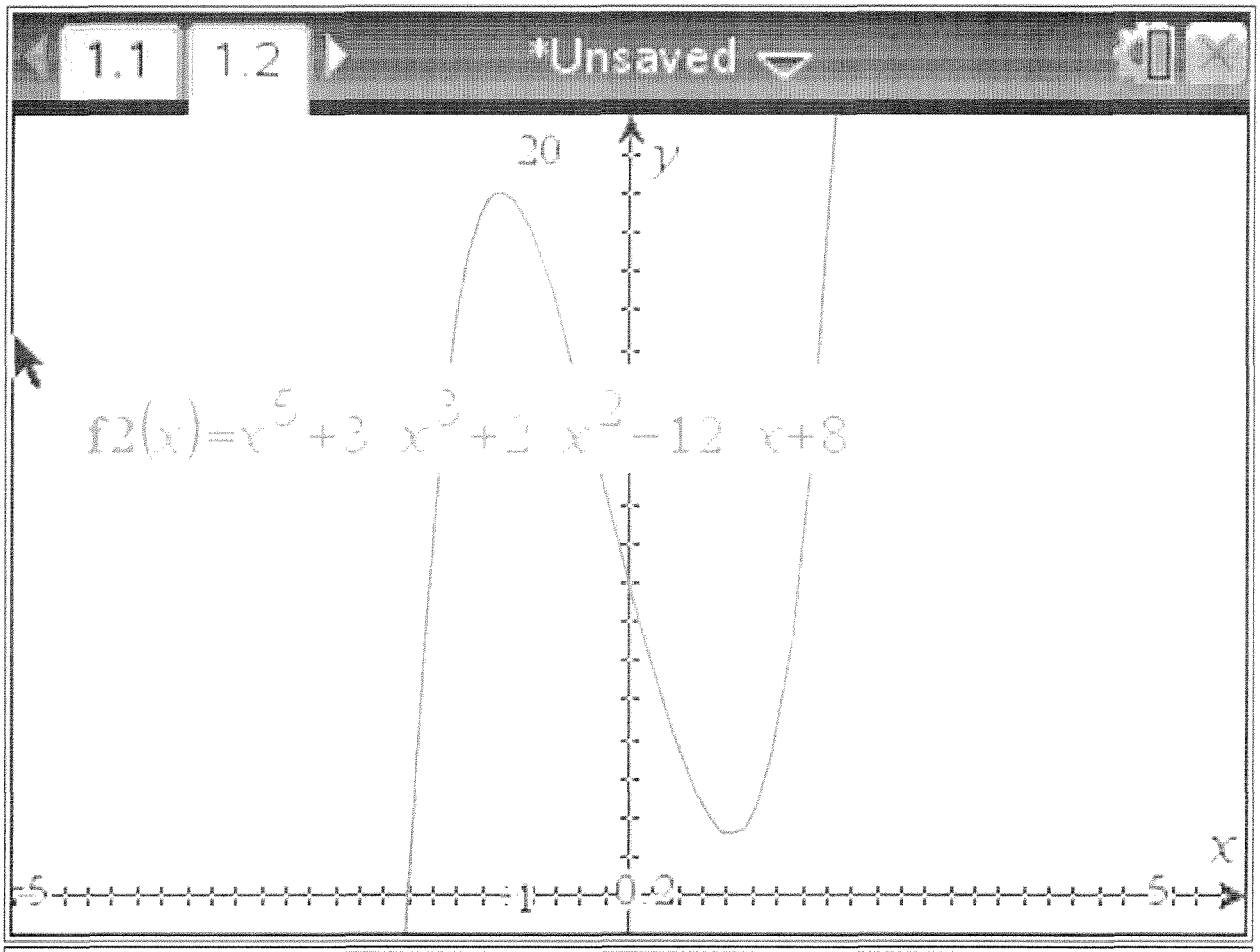
Absolute max: DNE Increasing: $(-\infty, -.388) \cup (1.85, \infty)$

Absolute min: DNE Decreasing: $(-.388, 1.85)$

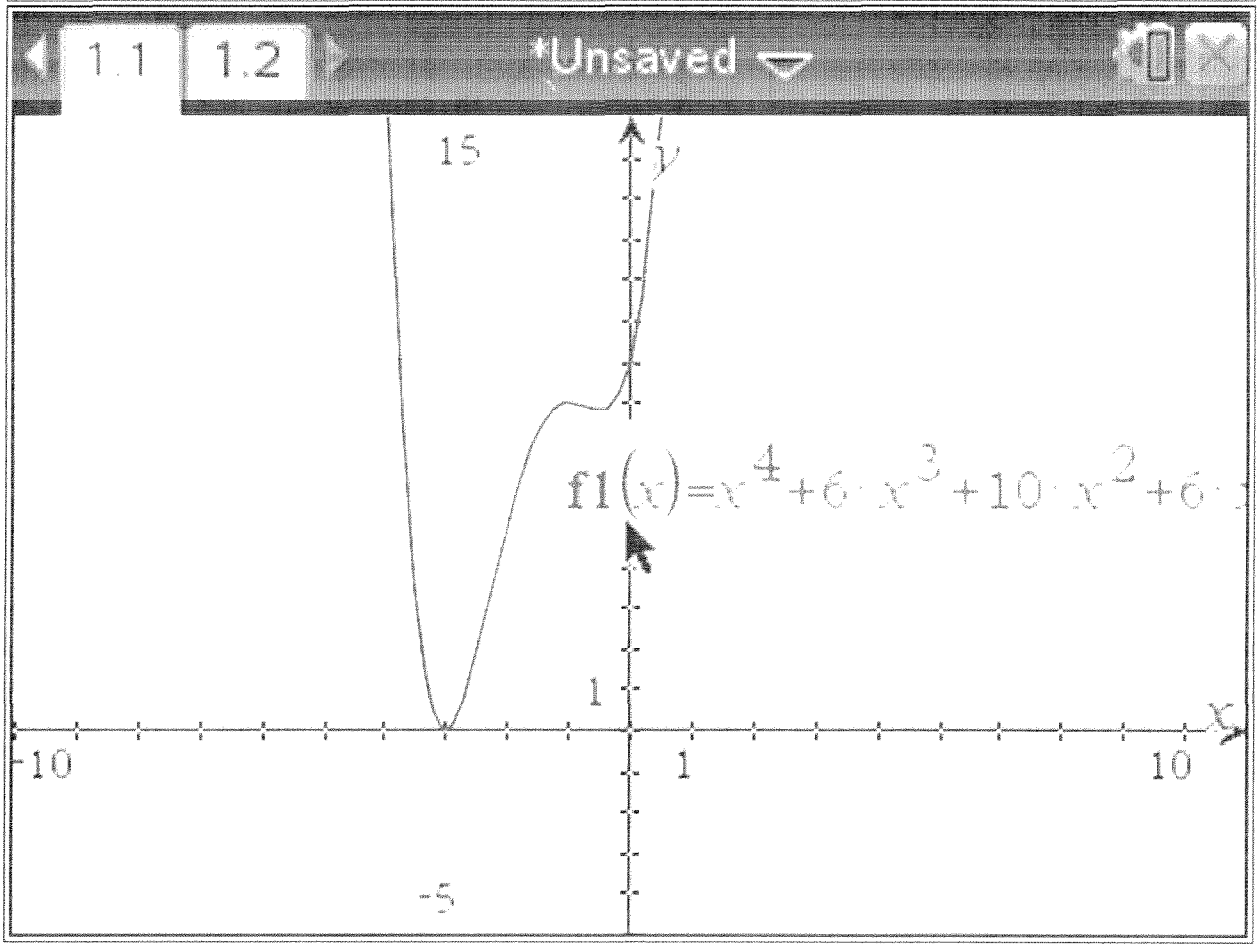
$x \to \infty, f(x) \to \infty$ $x \to -\infty, f(x) \to -\infty$

zeros: _____ y-int: -18

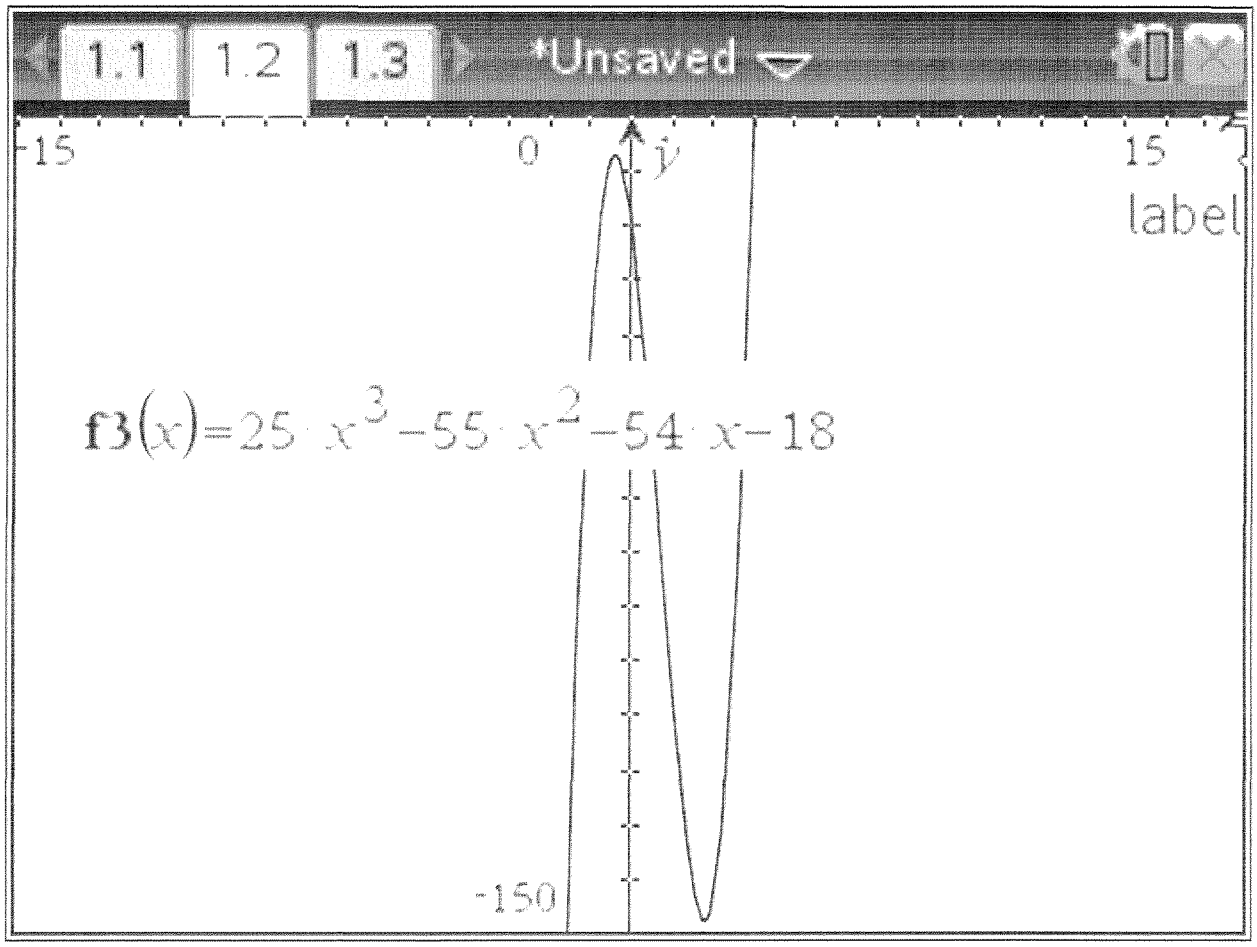
1.


1.1
1.2
*Unsaved
20
y
f2(x)=x^5+3 x^3+2 x^2−12 x+8
x
−5
−1
0
2
5

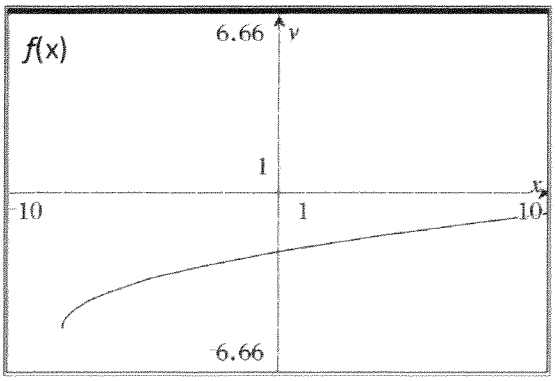
2.

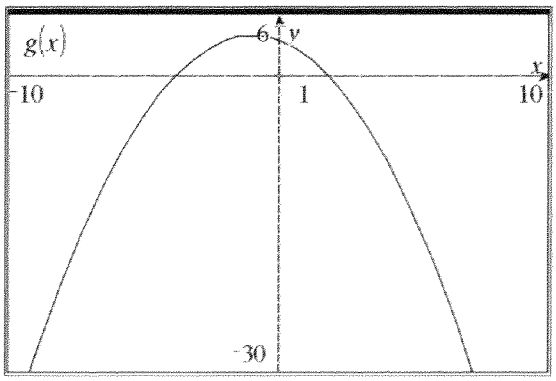

1.1
1.2
*Unsaved
15
y
f1(x)=x^4+6 x^3+10 x^2+6
1
x
−10
1
10
−5

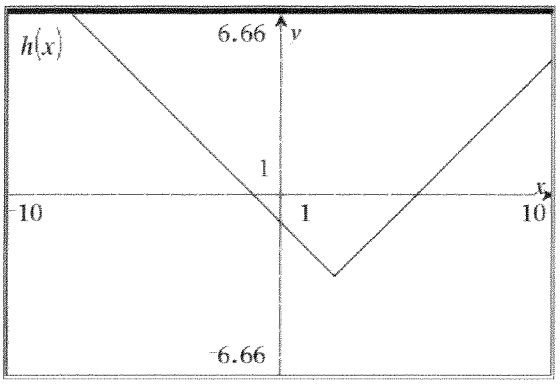
3.

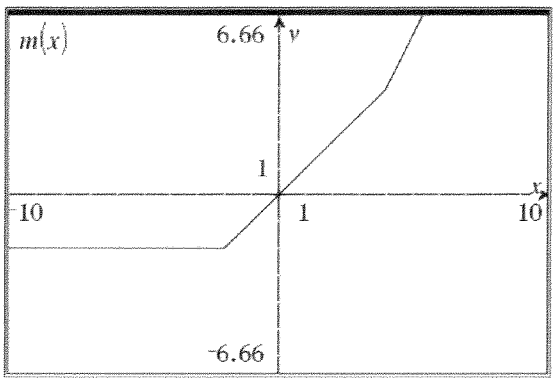


Use the graphs to find the following problems.









*4. m(g(3))

*5. h(-4)+f(-4)

*6. (m/f)(-4)

*7. (gh)(-5)

*8. g(1) – f(1)

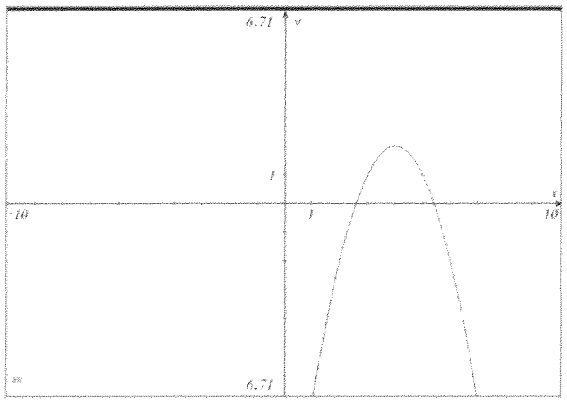
*9. h(-7) + m(-7)

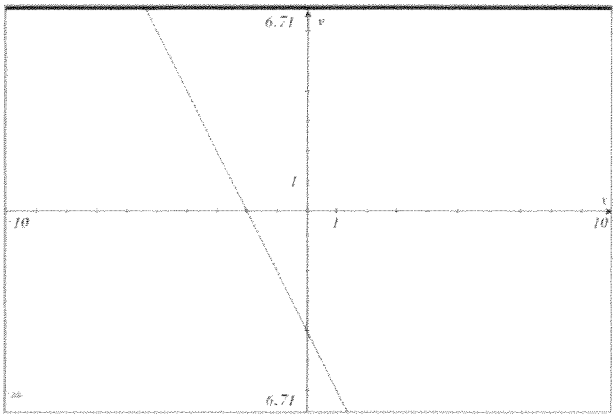
*10. h(m(3))

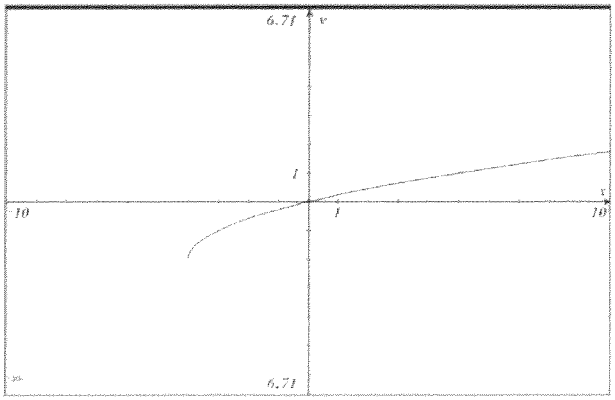
*11. h(f(-7))

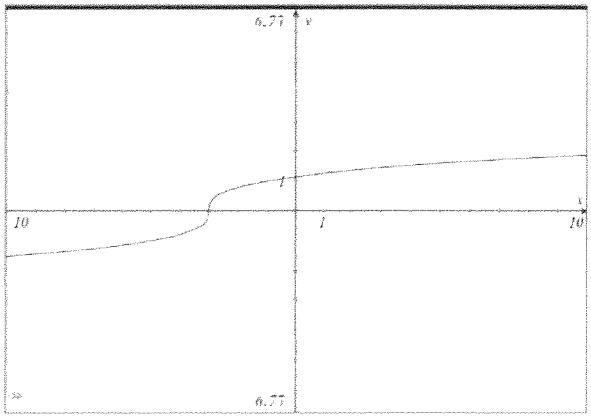
Unit 2 Day 6 WS Name _____ Per ____

Sketch the inverse for each function.

1. 

2. 

3. 

4. 

Find $f^{-1}(x)$.

5. $f(x) = -\frac{7}{2}x - 3$

6. $f(x) = x^3+5$

7. $f(x) = -\sqrt{x-8}$

8. $f(x) = 9-x^2$

Using a graphing utility, determine if the function is one-to-one.

9. $f(x) = \frac{x-1}{x+5}$

10. $f(x) = \frac{x^2}{x^2+1}$

11. $f(x) = \sqrt{16-x^2}$

12. $f(x) = \frac{1}{4}(x+2)^2 - 1$

U2 D6

1. OG

x	y
2	-2
3	1
4	2
5	1
6	-2

Inverse

x	y
-2	2
1	3
2	4
1	5
-2	6

1-4

switch x & y coord.

5. $y = \frac{-7}{2}x - 3$

$x = \frac{-7}{2}y - 3$

$x + 3 = \frac{-7}{2}y$

$\boxed{y = \frac{-2}{7}x - \frac{6}{7}}$

6. $x = y^3 + 5$

$x - 5 = y^3$

$\boxed{\sqrt[3]{x-5} = y}$

7. $x = -\sqrt{y-8}$

$(-x)^2 = y - 8$

$\boxed{y = (-x)^2 + 8}$

8. $x = 9 - y^2$

$-x + 9 = y^2$

$\boxed{y = \sqrt{-x+9}}$

9. yes 10. no fails 11. no horizontal 12. no

13. $x = \frac{1}{2}y - 5$ ✓

$2(x+5) = y$

14. $x = \frac{1}{4}\sqrt[3]{y+3}$ NO.

$(4x)^3 = y+3$

15. $x = \sqrt{y+10}$ No for $x \geq -10$

$x^2 - 10 = y$

16. $8x = 7y + 3$ yes

$\frac{8x-3}{7} = y$

17.

Based off graphs

15 8

16 1

17 -4

18 4

19 4

20 ½

21 -3

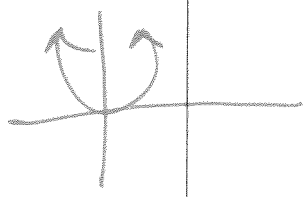
22 0

23 4

24

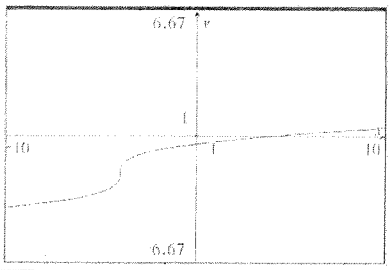
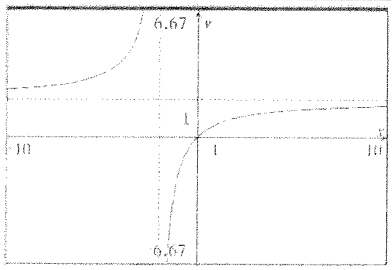
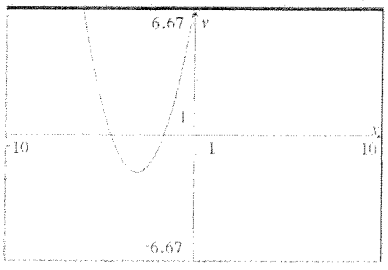
25.

U2D6 WS Name Key Per _____

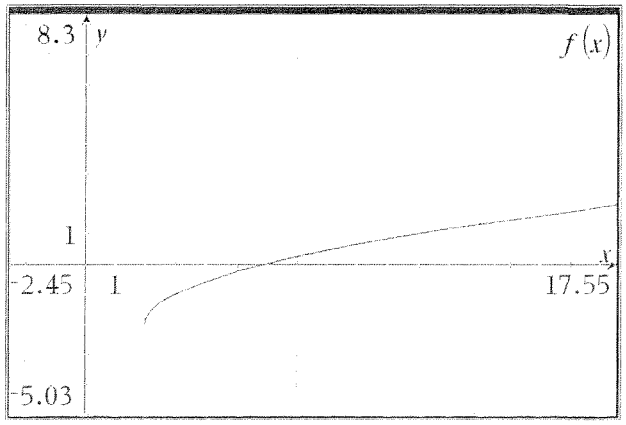
Name the two ways to domain gets restricted when root X in denom	Find the domain and range: $f(x) = x^2$ D: ℝ R: $[0, \infty)$ 
When you have a variable in the denominator, how do you find the domain? w/e makes den = 0 D = every thing but	Find the domain and range: $f(x) = \frac{1}{2x-2}$ D: ℝ except $x=1$ R: ℝ except $y=0$
When you have an even root, how do you find domain? $\sqrt{(\ )}$ when $(\ ) = 0$ $[-, -)$	Find the domain and range: $f(x) = \sqrt{3x+4}$ D: $[-\frac{4}{3}, \infty)$ R: $[0, \infty)$
Find the domain and range: $f(x) = \sqrt{2x^2+1}$ D: ℝ R: $[1, \infty)$	Find the domain and range: $f(x) = \frac{1}{x} + 3$ D: ℝ except $x=0$ R: ℝ except $y=0$
Find the domain and range: $f(x) = \frac{1}{\sqrt{x-1}}$ D: $(1, \infty)$ R: $(-\infty, 0) \cup (0, \infty)$	Find the domain and range: $f(x) = 3x + 4$ D: ℝ R: ℝ
Find the domain and range: $f(x) = \sqrt{3-x}$ D: $(-\infty, 3]$ R: $[0, \infty)$	Find the domain and range: $f(x) = \frac{1}{x^2-5x+6}$ D: ℝ except 2, 3 R: ℝ except $y=0$

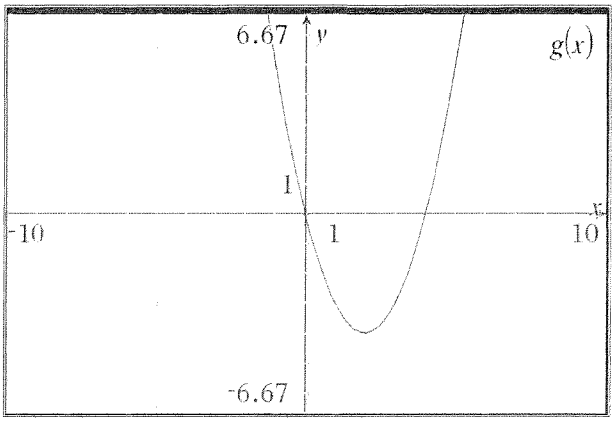
PreCalculus Unit 2 Day 7 WS Name Danielle per _____

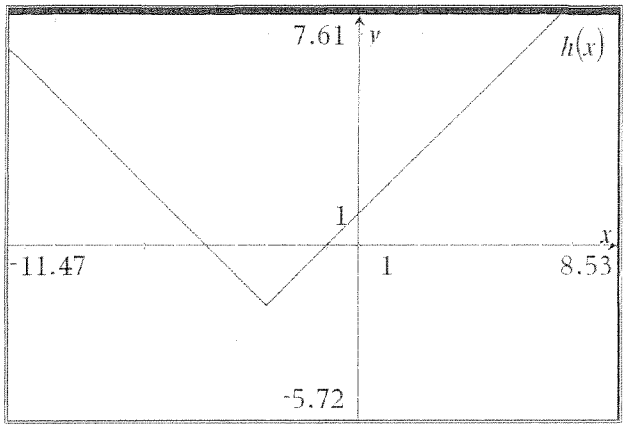
State the domain and range for each function. Use your calculator to only check answers!!

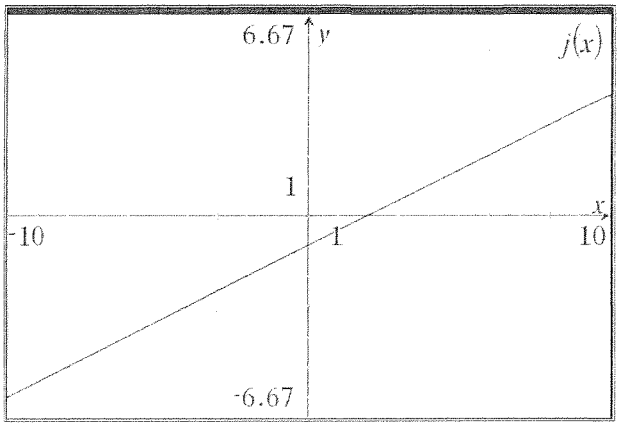
Function	Domain	Range
1. $f(x) = 3x + 4$	$\mathbb{R}$	$\mathbb{R}$
2. $f(x) = \sqrt{3 - x}$	~~$[3, \infty)$~~ $(-\infty, 3]$	$[0, \infty)$
3. $f(x) = \frac{x-6}{x-2}$	$\mathbb{R}$ except 2	$\mathbb{R}$ except $y=0$
4. $f(x) = \sqrt{25 - x^2}$	$[-5, 5]$	$[0, 5]$
5. $f(x) = x^{\frac{2}{3}}$	$\mathbb{R}$	$[0, \infty)$
6. $f(x) = (x-3)^2 - 4$	$\mathbb{R}$	$[-4, \infty)$
7. 	$\mathbb{R}$	$\mathbb{R}$
8. 	$\mathbb{R}$ except $x = -2$	$\mathbb{R}$ except $y = 2$
9. 	$\mathbb{R}$	$[-2, \infty)$

Use the graphs to answer the questions below.









10. $f^{-1}(1)$ 3 10

11. $g^{-1}(5)$ -1, 5

12. $h^{-1}(-2)$ -3

13. $j^{-1}(3)$ 8

14. $(f+g)(2)$ -6

15. $g(4)j(4)$ 0

16. $(h-j)(-2)$ 1

17. $(h(g))(3)$ -2

18. $f(x) = -2$ 2

19. $g(x) = -3$ 1

20. $h(x) = 1$ 0

21. $j(x) = -3$ -4

U2D9 WS

Name: Daniella

Even- Odd WS

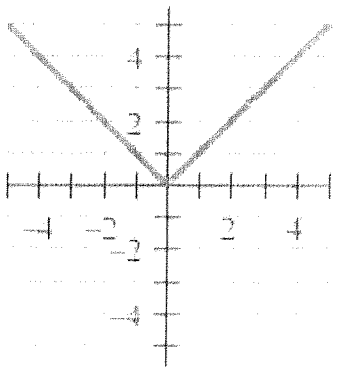
Date: _____ Hr: _____

1. If a function is even, its graph is symmetric with respect to the _____.
   This also means that $f(-x) =$ _____

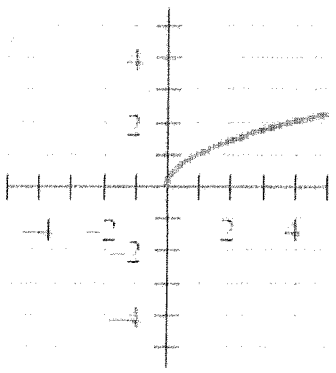
2. If a function is odd, its graph is symmetric with respect to the _____.
   This also means that $f(\ \ x) =$ _____

Determine whether each function graphed is even, odd, or neither

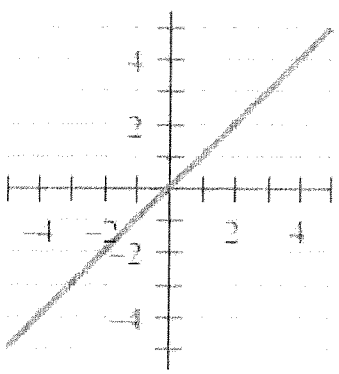
E 3.



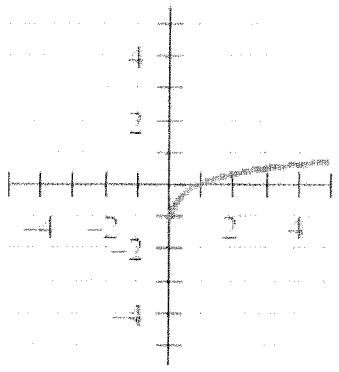
N 4.



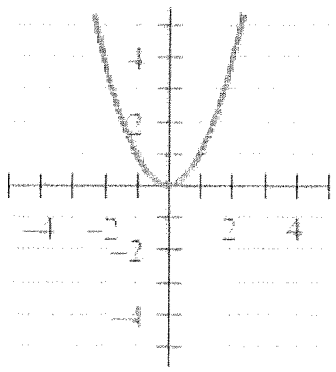
O 5.



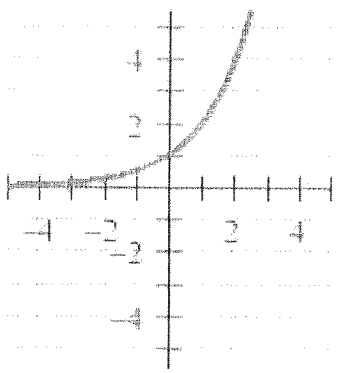
N 6.



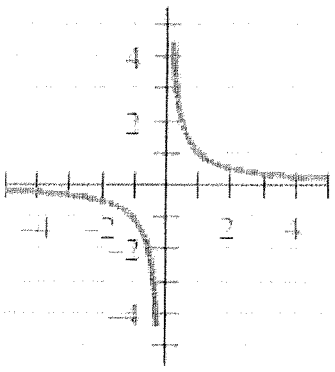
E 7.



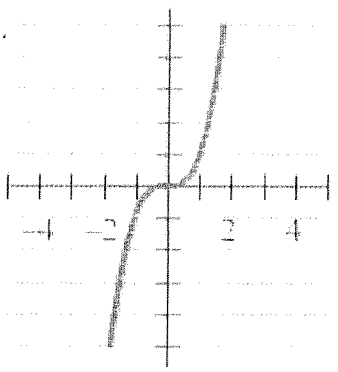
N 8.



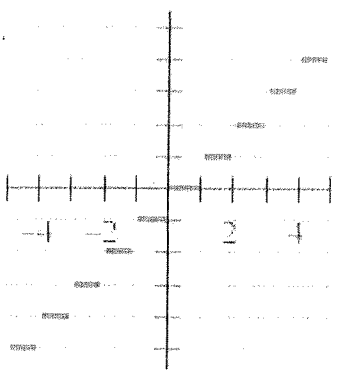
O 9.



O 10.



N 11.



Algebraically determine if the function is even, odd or neither. Work must be shown for credit.

12. $f(t) = t^2 + 2t - 3$

N

13. $g(x) = x^3 - 5x$

odd

14. $f(x) = x\sqrt{1 - x^2}$

odd

15. $g(s) = 4s^{2/3}$

even

16. $f(x) = x^6 - 2x^2 + 3$

Even

17. $n(x) = x^3 - 5$

Neither

Find the coordinates of a second point on the graph of function f if the given point is on the graph and the function is (a) even and (b) odd.

18. $\left(\frac{-3}{2}, 4\right)$

a. 3/2, 4

b. 3/2, -4

19. (4,9)

a. -4, 9

b. -4, -9

20. $(x, -y)$

a. -x, -y

b. -x, y

21. $(2a, 2c)$

a. -2a, 2c

b -2a, -2c

Unit 2 Day 8 (1)

Name _____ Per ____

Using your graphing utility and graph the following functions. Sketch a complete graph and label the graph to indicate the window settings. Identify the information listed.

1. **f(x) =-3x⁴+6x³-2x²+x-5**

Relative max(s): 1.29 Domain: ℝ

Relative min(s): _____ Range: (-∞, 2.47]

Absolute max: 1.29 Increasing: -∞, 1.29

Absolute min: DNE Decreasing: 1.29, ∞

$x \to \infty, f(x) \to$ -∞ $x \to -\infty, f(x) \to$ ∞

zeros: DNE y-int: -5

2. **f(x) =-6x⁵+6x⁴+3x²-2x+6**

Relative max(s): .945 Domain: ℝ

Relative min(s): .278 Range: ℝ

Absolute max: — Increasing: (.278, .945)

Absolute min: — Decreasing: (-∞, .278) (.945, ∞)

$x \to \infty, f(x) \to$ -∞ $x \to -\infty, f(x) \to$ ∞

zeros: 1.4 y-int: 6

3. **f(x) =6x³+4x²-10x+5**

Relative max(s): -1 Domain: ℝ

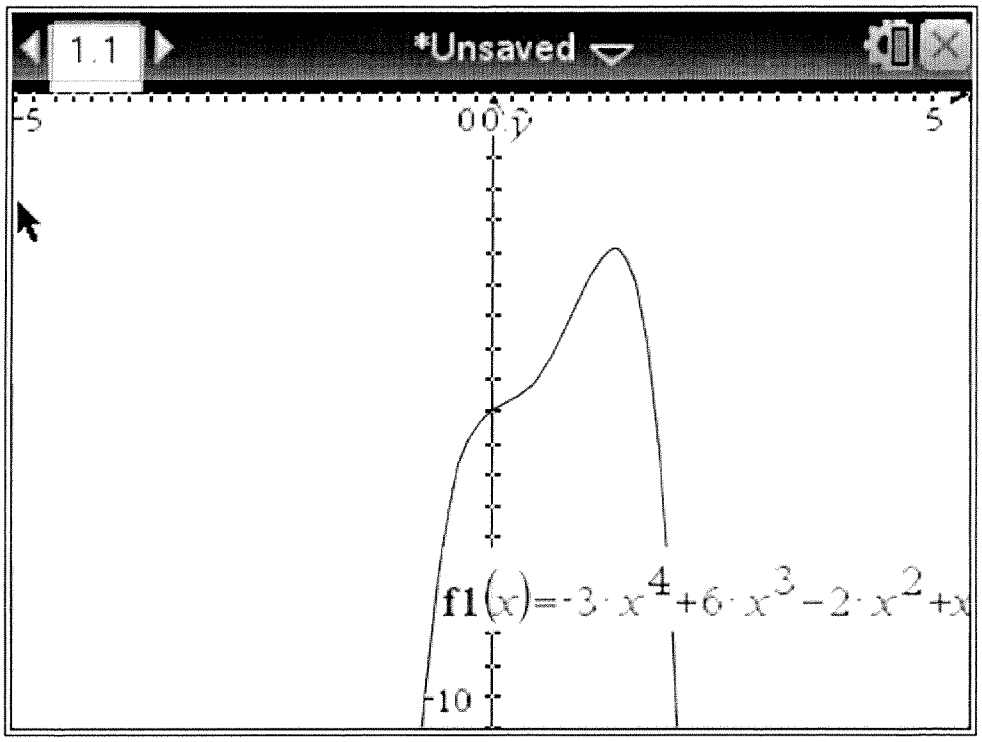
Relative min(s): .556 Range: ℝ

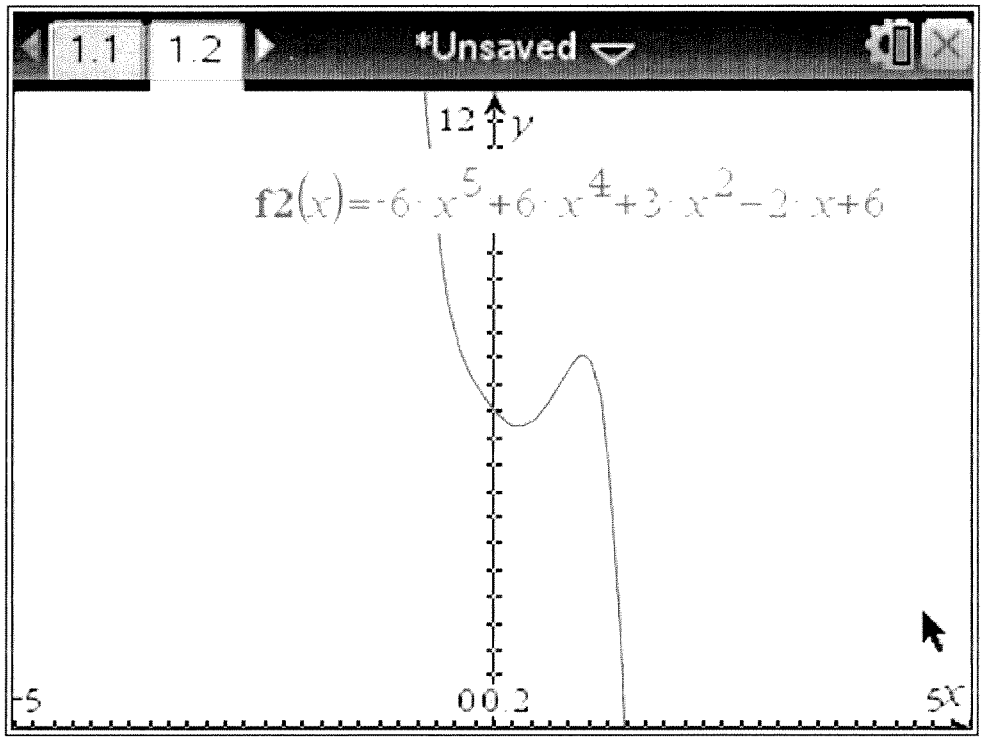
Absolute max: — Increasing: (-∞, -1) (.556, ∞)

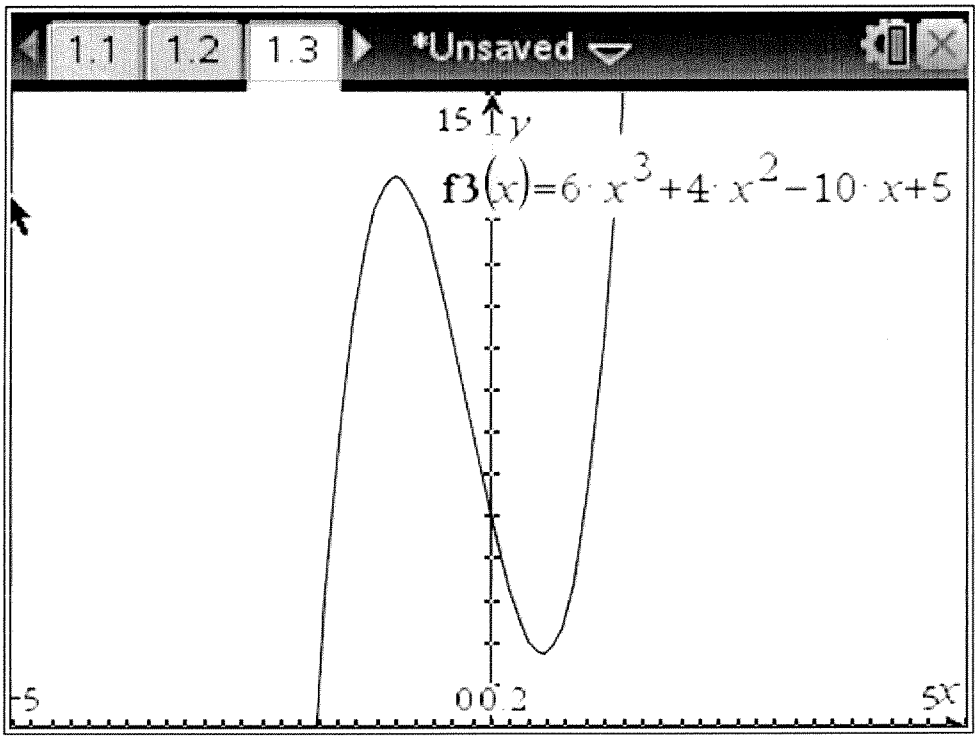
Absolute min: — Decreasing: (-1, .556)

$x \to \infty, f(x) \to$ ∞ $x \to -\infty, f(x) \to$ ∞

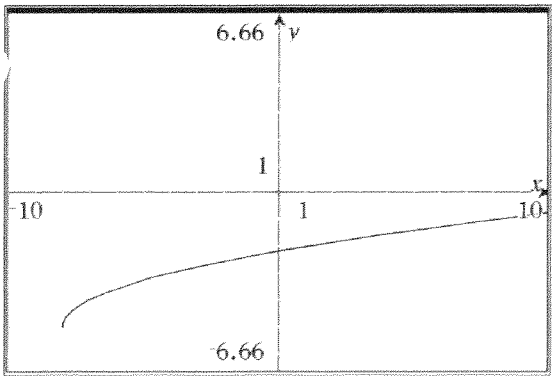
zeros: -1.83 y-int: 5

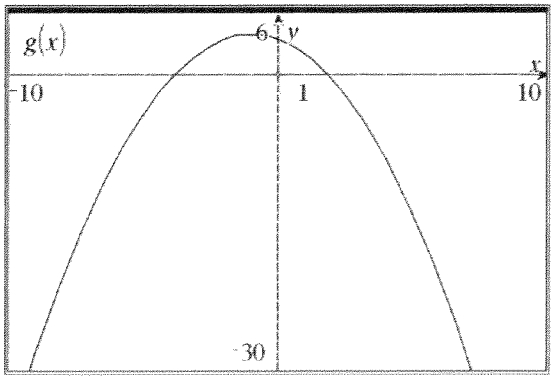
1. 
1.1
*Unsaved
-5
0
0
y
5
f1(x)=-3·x^4+6·x^3-2·x^2+x
-10

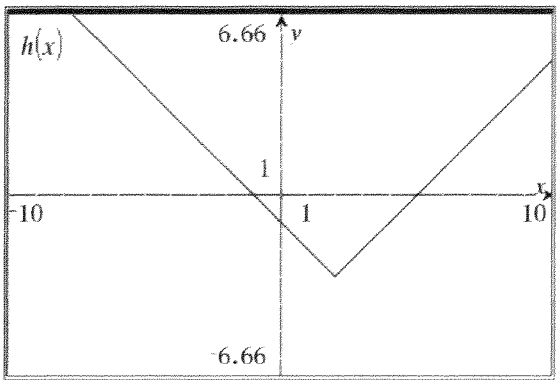
2. 
1.1
1.2
*Unsaved
12
y
f2(x)=-6·x^5+6·x^4+3·x^2-2·x+6
-5
0
0.2
5
x

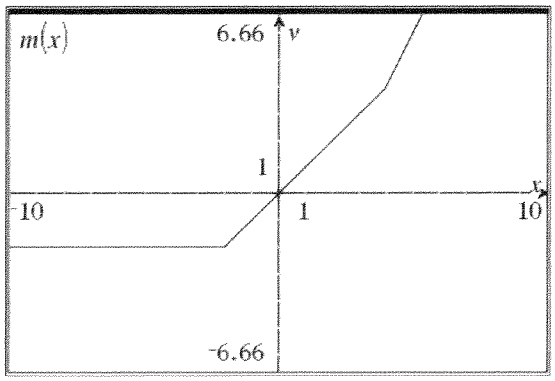
3. 

Use the graphs to find the following problems.









*4. m(g(4))

*5. h(-2)+f(-2)

*6. (m/f)(3)

*7. (gh)(5)

*8. g(2) – f(2)

*9. h(-2) + m(-2)

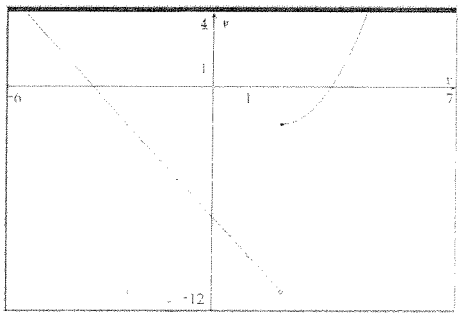
*10. h(m(1))

*11. h(f(-6))

Unit 2 Day 11 Name Answer Key Per _____ Date _____

Using the provided graphs, identify the information listed.

1.

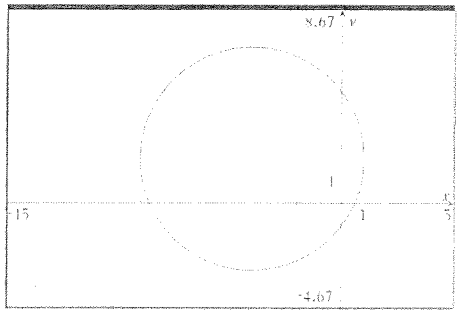


Domain: $\mathbb{R}$ Range: $y \geq -11$ or $[-11, \infty)$

Increasing: $(2, \infty)$

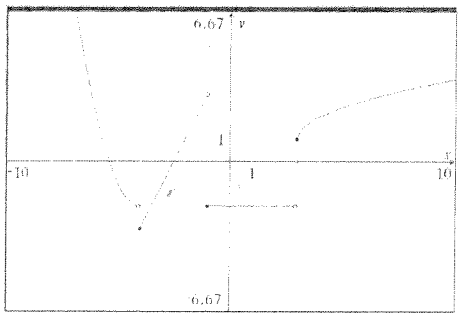
Decreasing: $(-\infty, 2)$

2.



Domain: $[-9, 1]$ Range: $[-3, 7]$

3.



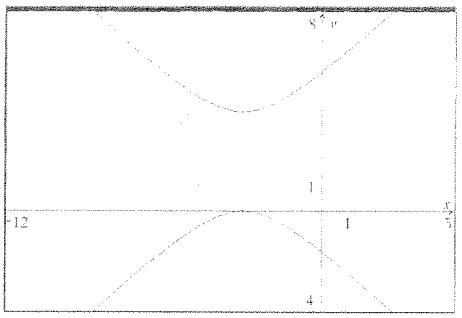
Domain: $\mathbb{R}$ Range: $(-3, \infty)$

Increasing: $[3, \infty)$ $[-9, -1)$

Decreasing: $(-\infty, -9)$

Constant: $[-1, 3)$

4.

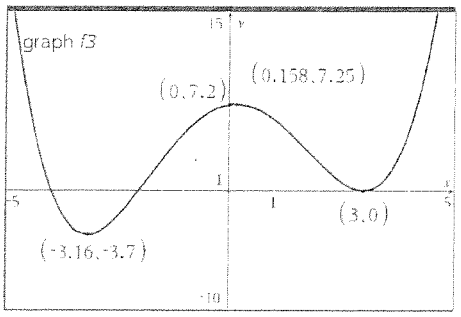


Domain: $\mathbb{R}$ Range: $(-\infty, 0]$ $[4, \infty)$

Relative max: $(-3, 0)$ Absolute max: DNE

Relative min: $(-3, 4)$ Absolute min: DNE

5.



Domain: $\mathbb{R}$ Range: $[-3.7, \infty)$

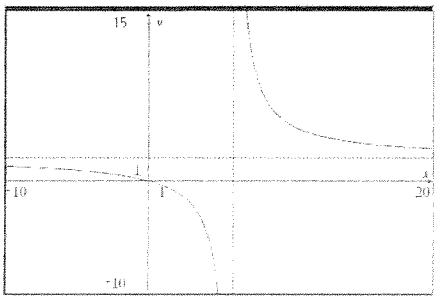
Relative max: DNE $(0, 7.2)$ Absolute max: DNE

Relative min: $(3, 0)$ $(-3.16, -3.7)$ Absolute min: $(-3.16, -3.7)$

Increasing: $[-3.16, 0]$ $[3, \infty)$

Decreasing: $(-\infty, -3.16]$ $[.158, 3]$

$x \to \infty, f(x) \to \infty$ $x \to -\infty, f(x) \to \infty$

6. 

Domain: $\mathbb{R}$ except 6 Range: $\mathbb{R}$ except 2

With the given information about two endpoints of a segment, please state the domain and range of the segment.

7. open endpoint (-8,2)
   Closed endpoint (4,-3)

   Domain: $(-8, 4]$ Range: $[-3, 2)$

8. closed endpoint (-2,4)
   open endpoint (1,4)

   Domain: $[-2, 1)$ Range: $y = 4$

From the given equations, state the domain and range. Please do not use a graphing calculator.

10. $f(x) = |x + 7|$

    Domain: $\mathbb{R}$ Range: $y \geq 0$

11. $h(x) = \frac{x+6}{x-5}$

    Domain: $\mathbb{R}$ except 5 Range: $\mathbb{R}$ except 1

12. $j(x) = -4x + 9$

    Domain: $\mathbb{R}$ Range: $\mathbb{R}$

13. $g(x) = \sqrt{2x + 5}$

    Domain: $[-\frac{5}{2}, \infty)$ Range: $y \geq 0$

14. $f(x) = \frac{2x-5}{x^2+3x-10}$

    Domain: $\mathbb{R}$ except -5 Range: $\mathbb{R}$

U2D12 WS Name _____ Per _____

1-4, Determine whether the equation represents a function.

1. $y = 3x^2 - 2$ yes

2. $x^2 + y^2 = 12$ no

3. $2x + 3y = 4$ yes

4. $x = y^2 - 3$ no

5-8, Evaluate the function for the given values.

$f(x) = 3x - 2$ $g(x) = \sqrt{2x+1} + 3$ $h(x) = x^2 + 1$

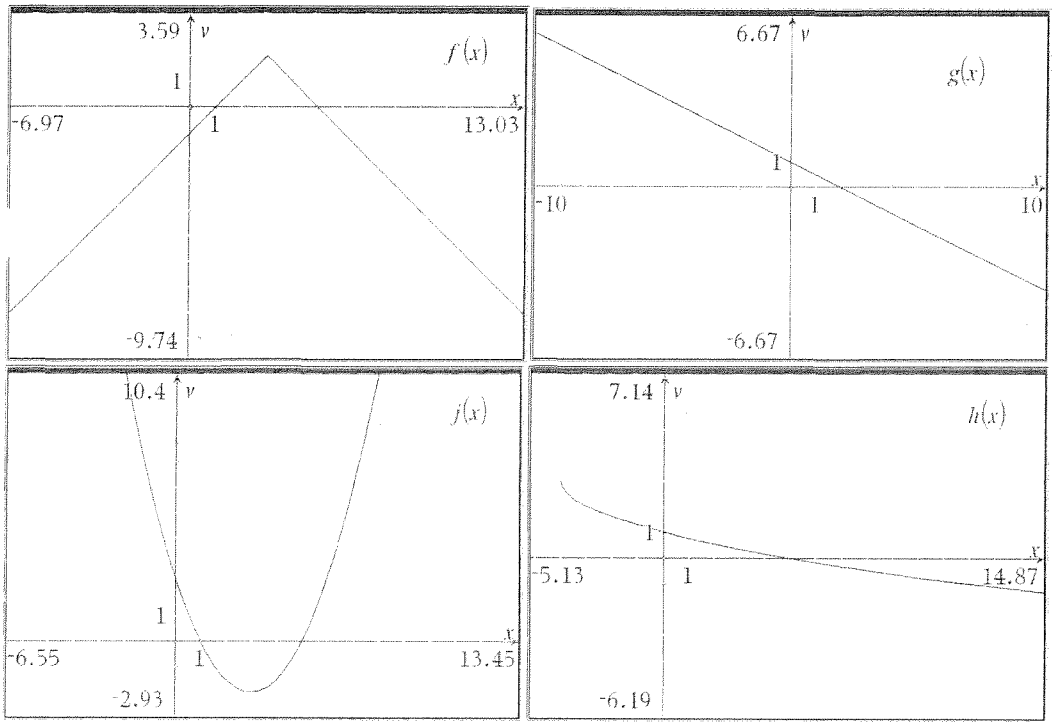
5. $(f + g)(4)$ 16

6. $f(h(-1))$ 4

7. $g(0) - f(0)$ $4 + 2 = 6$

8. $\frac{f(-2)}{h(-2)}$ $-8/5$

9-16, Use the following graphs to answer the questions.



9. $(f + g)(2)$ $1 + 0 = 1$

10. $h^{-1}(0)$ 5

11. $h(x) = 3$ $x = 4$

12. $g(4) + f(4)$ $-1 + 1 = 0$

13. $(f \circ g)(2)$ $f(0) = -1$

14. $(j - f)(7)$

15. $\frac{h(0)}{g(0)}$

16. $j(-1) \cdot g(-1)$

17-19, find A) $(f \circ g)(x)$ B) state the domain of the composite function, and C) $(f \circ g)(2)$

17. $f(x) = 3x - 2$

$g(x) = \sqrt{x-2}$

a. $3\sqrt{x-2} - 2$

b. $[2, \infty)$

c. -2

18. $f(x) = 3x - 2$

$g(x) = \frac{2}{x+3}$

a. $\frac{6}{x+3} - 2$

b. $\mathbb{R} \neq -3$

c. $-4/5$

19. $f(x) = 3x - 2$

$g(x) = x^2 + 1$

a. $3x^2 + 1$

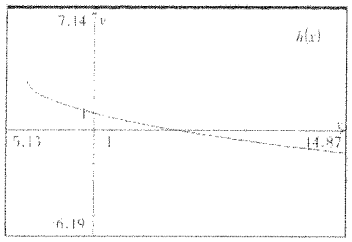
b. $\mathbb{R}$

c. 13

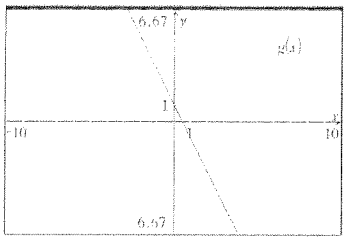
Sketch the inverse for each function.

switch x + y then graph

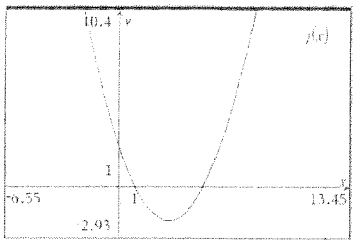
20.



21.



23.



24-27, Find the domain and range.

24. $f(x) = \sqrt{x-3} + 2$

D: $[3, \infty)$

R: $[2, \infty)$

25. $f(x) = \frac{2x}{3x-2}$

D: $\mathbb{R} \neq 2/3$

R: $\mathbb{R} \neq 0$

26. $f(x) = (x-2)^2 + 1$

D: $\mathbb{R}$

R: $[1, \infty)$

27. $f(x) = \sqrt{49 - x^2}$

D: $[-7, 7]$

R: $[0, 7]$

28. Using your graphing utility and graph the following functions. Sketch a complete graph and label the graph to indicate the window settings. Identify the information listed.

$f(x) = 0.1x^4 - 1.9x^2 + 0.6x + 7.2$

Relative max(s): $(0, 7.2)$ $(-3.158, -3.697)$ Domain: $\mathbb{R}$

Relative min(s): $(3, 0)$ Range: $[-3.69, \infty)$

Absolute max: DNE Increasing: $(-3.158, 0)(3, \infty)$

Absolute min: $(-3.158$ Decreasing: $(-\infty, -3.158)(0, 3)$

$x \to \infty, f(x) \to +\infty$ $x \to -\infty, f(x) \to +\infty$

zeros: $x = 3, -4, -2$ y-int: 7.2

Pre-Calculus Name_____ ID: 1

U2 Review

Date_____ Period____

State if the given functions are inverses. Show work as proof.

1) $g(x) = \frac{4}{x-2} - 1$
$f(x) = \frac{4}{x+1} + 2$

2) $g(x) = -x - 4$
$f(x) = 2x - 2$

3) $g(n) = \sqrt[3]{\frac{-n-3}{2}}$
$f(n) = -2n^3 - 3$

4) $g(x) = \frac{-2x+10}{5}$
$f(x) = 5 + \frac{9}{5}x$

Find the inverse of the given function. Show all work.

5) $f(x) = -3 - \frac{5}{2}x$

6) $g(x) = 3 - \frac{2}{3}x$

7) $f(x) = -(x-2)^5$

8) $g(x) = \frac{4}{x+2}$

Perform the indicated operation.

9) $f(x) = 3x - 3$
$g(x) = x^3 - 5x^2 - x$
Find $(5f + 5g)(x)$

10) $g(t) = 2t^2 - t$
$f(t) = 4t - 2$
Find $(5g + 5f)(t)$

11) $f(a) = 3a + 2$
$g(a) = 4a - 2$
Find $(3f + g)(a)$

12) $h(n) = n^3 - 5n^2$
$g(n) = 3n$
Find $\left(\frac{h}{g}\right)(n)$

13) $g(n) = -3n + 5$
$h(n) = n^2 + n$
Find $g(-8) \div h(-8)$

14) $g(x) = 4x + 2$
$f(x) = 3x - 5$
Find $g(f(3))$

15) $h(n) = 3n + 1$
$g(n) = -2n^2 + 2n$
Find $\left(\frac{h}{g}\right)(-6)$

16) $g(n) = n + 4$
$f(n) = n^2 - 1$
Find $(g + f)(3)$

17) $g(t) = 4t - 3$
$f(t) = t^2 + 3t$
Find $(g \circ f)(-4t)$

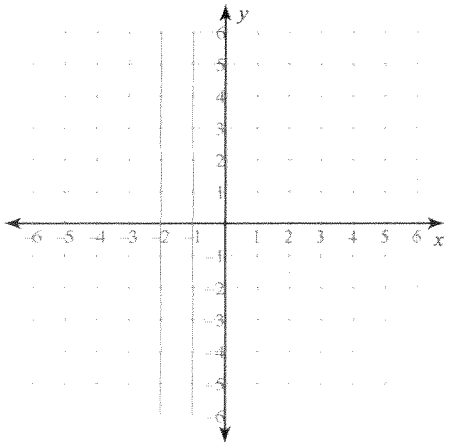
18) $f(t) = 2t + 1$
$g(t) = t + 2$
Find $(4f + 3g)(-4t)$

19) $f(t) = -3t + 4$
$g(t) = 2t - 5$
Find $f(t^2) \div g(t^2)$

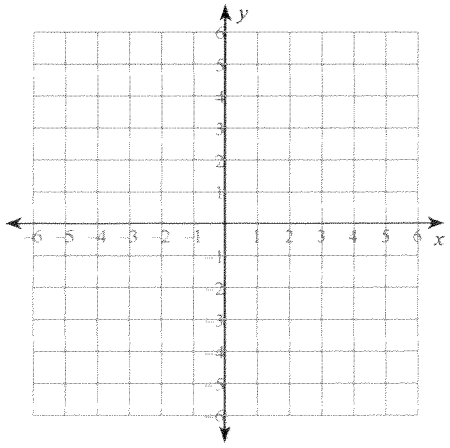
20) $f(x) = x^3 + 3$
$g(x) = -3x + 4$
Find $(f - g)(x + 3)$

Graph the original equation and the inverse. Be sure to label each.

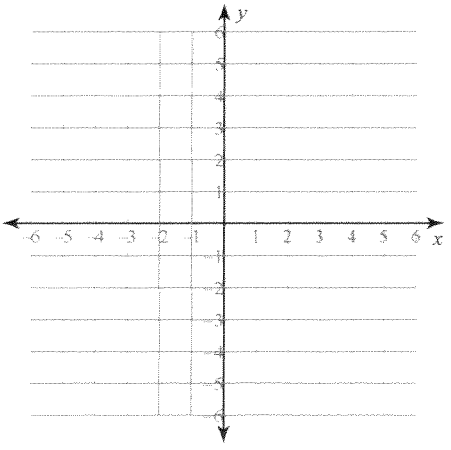
21) $g(x) = \frac{3}{x+1} - 1$



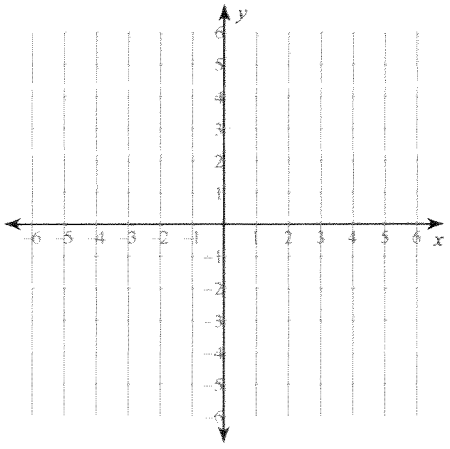
22) $g(n) = -n$



23) $g(n) = -n - 3$



24) $g(x) = (x - 1)^3 + 1$



Answers to U2 Review (ID: 1)

1) Yes

2) No

3) Yes

4) No

5) $f^{-1}(x) = -\frac{2}{5}x - \frac{6}{5}$

6) $g^{-1}(x) = -\frac{3}{2}x + \frac{9}{2}$

7) $f^{-1}(x) = -\sqrt[5]{x} + 2$

8) $g^{-1}(x) = \frac{4}{x} - 2$

9) $5x^3 - 25x^2 + 10x - 15$

10) $10t^2 + 15t - 10$

11) $13a + 4$

12) $\frac{n^2 - 5n}{3}$

13) $\frac{29}{56}$

14) 18

15) $\frac{17}{84}$

16) 15

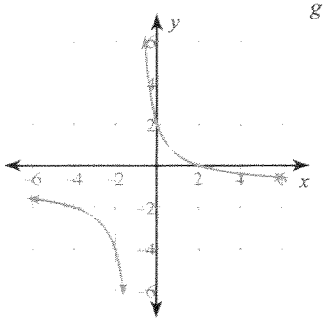
17) $64t^2 - 48t - 3$

18) $-44t + 10$

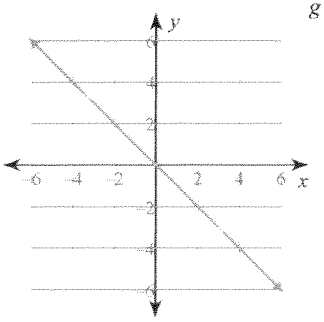
19) $\frac{-3t^2 + 4}{2t^2 - 5}$

20) $x^3 + 9x^2 + 30x + 35$

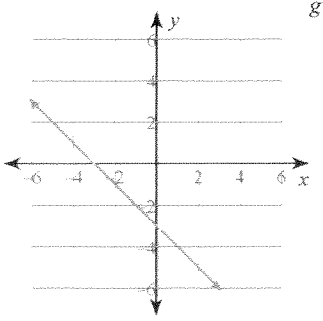
21) $g^{-1}(x) = \frac{3}{x+1} - 1$



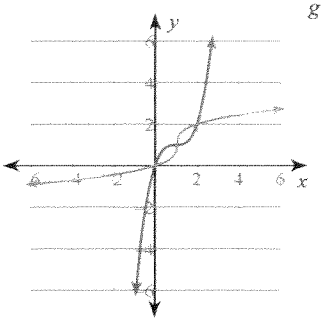
22) $g^{-1}(n) = -n$



23) $g^{-1}(n) = -n - 3$



24) $g^{-1}(x) = \sqrt[3]{x-1} + 1$



Extreme Punkin' Chunkin'

Pumpkin.tns

Name Danielle

Class _____

Problem 1 – Punkin' Chunkin' Team 1

The function is plotted on page 1.4. Drag the plotted point to find the values of interest.

1. What are the maximum height reached and the total horizontal distance traveled for the pumpkin? Round to the nearest foot.

max height: 50
distance: 581

2. At what distance above the ground was the pumpkin launched?

4 ft

3. If a 10-foot high chain-linked fence is in the path of the pumpkin at a distance of 500 feet from where the pumpkin is released, will it pass over the fence? How high is the pumpkin when it reaches the fence?

yes 23.63 ft

4. Which values represent the zero, extremum, and *y*-intercept of the function?

zeros: ground
max: height
y-int: starting distance off ground

Problem 2 – Punkin' Chunkin' Team 2

Use what you have learned in Problem 1 to answer the questions about Team 2's launch.

5. What are the maximum height reached and the total horizontal distance traveled for the pumpkin? Round to the nearest foot.

74 ft max
1547 ft distance

6. At what distance above the ground was the winning pumpkin launched?

5 ft

7. Overall, how did the trajectory of Team 1's pumpkin compare to Team 2's pumpkin? Why do you think Team 2's pumpkin went farther?

Team 2 was better w/ height & distance

Problem 3 –Cost of Kayaks

The function is plotted on page 3.3. Drag the plotted point to find the values of interest.

8. How many kayaks should the shop build to minimize the average cost per kayak?

70 or 65 kayaks x=10 kayaks

9. What is the cost per kayak in the minimized cost situation?

$161

Problem 4 – Espresso Yourself

The function is plotted on page 4.2. Drag the plotted point to find the values of interest.

10. What are the maximum profit and the approximate price per cup of espresso that yields this maximum profit?

max: 1631.25 profit
$1.25 per cup

11. According to the given model, at what price per cup will sales be so low that the stand will not obtain any profit?

$2

Algebra 2 Name_____ ID: 1

U2D6 Date_____ Period____

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

1) Slope $= \frac{1}{3}$, y-intercept $= 2$

2) Slope $= -3$, y-intercept $= 3$

3) Slope $= -\frac{3}{4}$, y-intercept $= 0$

4) Slope $= 1$, y-intercept $= 2$

5) Slope $= \frac{1}{5}$, y-intercept $= -2$

6) Slope $= -\frac{1}{2}$, y-intercept $= 2$

Write the slope-intercept form of the equation of each line.

7) $x = 1$

8) $4x - 3y = 9$

9) $14x + 3y = 21$

10) $3x + 5y = -15$

11) $x + y = -8$

12) $9x - 4y = 16$

13) $y + 2 = \frac{1}{5}(x + 5)$

14) $y + 4 = x + 2$

15) $y + 5 = -3(x - 2)$

16) $0 = x - 4$

17) $y = -\frac{1}{5}(x + 4)$

18) $y + 4 = \frac{9}{8}(x + 4)$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

19) through: $(2, -5)$, slope $= -1$

20) through: $(-3, 3)$, slope $= 0$

21) through: $(2, -2)$, slope $= 0$

22) through: $(1, -2)$, slope $= 3$

23) through: $(3, -1)$, slope = undefined

24) through: $(5, 2)$, slope $= \frac{3}{5}$

Answers to U2D6 (ID: 1)

1) $y = \frac{1}{3}x + 2$

2) $y = -3x + 3$

3) $y = -\frac{3}{4}x$

4) $y = x + 2$

5) $y = \frac{1}{5}x - 2$

6) $y = -\frac{1}{2}x + 2$

7) $x = 1$

8) $y = \frac{4}{3}x - 3$

9) $y = -\frac{14}{3}x + 7$

10) $y = -\frac{3}{5}x - 3$

11) $y = -x - 8$

12) $y = \frac{9}{4}x - 4$

13) $y = \frac{1}{5}x - 1$

14) $y = x - 2$

15) $y = -3x + 1$

16) $x = 4$

17) $y = -\frac{1}{5}x - \frac{4}{5}$

18) $y = \frac{9}{8}x + \frac{1}{2}$

19) $y = -x - 3$

20) $y = 3$

21) $y = -2$

22) $y = 3x - 5$

23) $x = 3$

24) $y = \frac{3}{5}x - 1$

Algebra 2 Name_____ ID: 1

U2D7 Date_____ Period____

Write the slope-intercept form of the equation of each line.

1) $4y + x = 20$

2) $2x = 30 + 20y$

3) $0 = -5x + 5 + y$

4) $y + 3 = x$

Write the slope-intercept form of the equation of the line through the given points.

5) through: $(4, -3)$ and $(-4, 3)$

6) through: $(2, 3)$ and $(0, -1)$

7) through: $(1, -1)$ and $(2, 4)$

8) through: $(-5, 0)$ and $(-2, -2)$

Write the slope-intercept form of the equation of the line described.

9) through: $(-3, -1)$, parallel to $y = \frac{1}{3}x + 2$

10) through: $(2, 5)$, parallel to $y = \frac{7}{4}x - 4$

11) through: $(-3, 5)$, parallel to $y = -\frac{7}{4}x - 2$

12) through: $(5, -5)$, parallel to $y = -\frac{4}{5}x + 4$

13) through: $(3, 3)$, perp. to $y = -\frac{3}{8}x + 1$

14) through: $(-3, -3)$, perp. to $y = -\frac{7}{8}x + 4$

15) through: $(-1, -5)$, perp. to $y = -\frac{1}{7}x - 4$

16) through: $(-2, 4)$, perp. to $y = \frac{2}{7}x + 5$

Answers to U2D7 (ID: 1)

1) $y = -\frac{1}{4}x + 5$

2) $y = \frac{1}{10}x - \frac{3}{2}$

3) $y = 5x - 5$

4) $y = x - 3$

5) $y = -\frac{3}{4}x$

6) $y = 2x - 1$

7) $y = 5x - 6$

8) $y = -\frac{2}{3}x - \frac{10}{3}$

9) $y = \frac{1}{3}x$

10) $y = \frac{7}{4}x + \frac{3}{2}$

11) $y = -\frac{7}{4}x - \frac{1}{4}$

12) $y = -\frac{4}{5}x - 1$

13) $y = \frac{8}{3}x - 5$

14) $y = \frac{8}{7}x + \frac{3}{7}$

15) $y = 7x + 2$

16) $y = -\frac{7}{2}x - 3$